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Initial Interrogatories
to SCE&G,
Cc to Public Service Commission

August 9, 2012

from Intervenor Pamela Greenlaw to SCE&G on Its Petition for Updates and Revisions to Schedules Related to the Construction of a Nuclear Base Load Generation Facility at Jenkinsville, South Carolina, Docket 2012-203-E

1. On page 5 of the Petition, item #15 states that "SCE&G issued a Full Notice to Proceed to WEC/Shaw for construction of the Units." Why was this issued before the outstanding permits required to continue and complete the project are not complete, approved, and in hand?

2. Prior to construction of facilities certain permits should be acquired and retained. Please provide the dates of application submitted and/or dates anticipated to be submitted and the dates of the granting for each of these permits:
   a. Construction Permit Circulating Water System (CWS), Liquid Radwaste system, WLS, & WWS piping
   b. Surface Water Withdrawal Permit (State of South Carolina)
   c. Water Withdrawal Approval for RWS
   d. Permit to Construct Construction City, SDS STP #48
   e. DHEC Construction Permit, Table Top TT Sanitary Treatment Plant
   f. Construction Permit Waste Water Retention Basin, WWRB

3. Of the permits and licenses named by Mr. Marsh in his direct testimony, p. 15, which ones are actually in hand?

4. What remains in the discovery phase of construction as of July 2012?

5. On the same Page, lines 14-16, what work is being done on the intermittent streams? Are these streams being preserved, piped, diverted, filled, or otherwise impacted? What will the mitigation be? Please list the number of linear feet being impacted and the location of the mitigating stream.

6. In reference to Page 7, item #24 What written agreement or assurance was given by the Nuclear Regulatory Commission to SCE&G and/or to WEC/Toshiba/Shaw concerning a real or probable deadline by which the Company could expect final approval on the AP 1000 application, and what is the date of that agreement ?

7. What was the timeline of the NRC's issuance of the draft of the aircraft impact rule, the signing of the EPC contract, and the issuance of the final rule?

8. Who or what independent lab had tested the original shield building design, i.e., before the NRC required changes, to withstand aircraft? Hurricanes and tornadoes? What were the results of these tests?
9. Is the new shield design being installed in the AP1000 in China?
10. The new shield design involved a construction technique new to US regulators. How long and at what nuclear plants has this construction technique been used abroad?

11. On pg. 8, #28, on what date did SCE&G ask for a revision of the AP 1000 waste water discharge piping for gravity drainage to the Waste Water System Discharge Piping?

12. On the same item number, why was the AP 1000 original waste water discharge piping design in need of revision after the Public Service Commission approved the proposed construction schedule and capital costs in order 2009-104(A)? What original form or type of drainage mechanism was desired to be changed to gravity drainage? What are the advantages and disadvantages of each type?

13. With the use of gravity drainage, does that indicate that all the waste water will be discharged into a waterway rather than diverted to a wetland or retention area for a degree of natural filtering?

14. What is the contaminant content of that water? Will radionuclides be included?

15. On p. 16 of Mr. Marsh's testimony, lines 4 -5, what was the major risk factor identified in 2008 that has been resolved? How has it been resolved? Is there an attending cost to its resolution?

16. Indicated on pg. 8, #28 of the Petition, how does the revised design of the waste water discharge piping affect environmental impact? Was the revision completed prior to the approval of the Environmental Impact Statement?

17. On page 8, #29. Under what statute, regulation, and section is health care for employees of a contracted company with SCE&G a capital cost or a construction cost of the owners?

18. What are the timelines, costs, materials, and locations of fabrication and assembly for the construction of hardened above ground dry cask storage (HAS) containers for spent fuel? What is/are company (ies) contracted to complete this work?

19. On pg. 23 of Mr. Marsh's direct testimony, line 7, he refers to a "limited number of components for Unit 3" are not in production nor are they finished. What are these components, their costs, with whom the production is to be contracted, the anticipated dates they will begin production, etc.

20. Include the types of HAS designs that are available/ or in design stage, dates of the bidding process, of the anticipated number HAS units needed, their location at the site, etc.

21. What changes in the AP 1000 for this next design (Revision 19) are required of Westinghouse/ Toshiba/Shaw as a result of lessons learned from Fukushima?

22. What were the timeline for the soil borings by the geotechnical subcontractors (MACTEC Engineering Consultants) and the timeline for the selection of the sites for Unit 2 and Unit 3?

23. What kinds of borings were done into and below the rock on these sites?

24. How many borings of each type were completed in each unit's footprint?

25. In the vetting of MACTEC Engineering Consultants, what did SCE&G discover in the historical performance of the Consultants' work with the nuclear industry? If not only in nuclear, what are the Consultants' experience and the experience of the actual employees who performed the core sampling and field investigation in terms of number of years operating, locations of prior geotechnical work, recommendations from other contractors, recommendations in a company or personal portfolio from companies or individuals for whom they have completed similar work.

26. Provide the reasons SCE&G did not use its own oversight to ensure that construction and process was done in accordance with the Design Control Document.

27. Why did the NRC have to step in to ensure the same errors made at Vogtle were not repeated at Summer?

28. What do the contracts SCE&G made with Westinghouse/Toshiba/Shaw and other contractors state about substitution of techniques and deviation from blueprints and design directives in general and in particular?

29. Who approved variance from the design? *Do you still think NRC is wrong in this decision to return to technical designing not to contractors' changes?*

30. Since not all required permits were in hand before the application for a COL was submitted, on what basis was the assumption of a timeline by which Company expected approval of the COL?

31. After the terrorists' attack on the World Trade Center on September, 2011, in what ways did SCE&G express the realization that their original target for the COL issuance was likely not to occur when originally anticipated?

32. In Mr. Byrnes's written testimony (p. 9, lines 16-17) stated that the Milestone 61 related to the hydrostatic testing of the Core Make-up Tank please explain more specifically. *What really happened?*

33. What was the date the hydrostatic testing was completed?

34. What are SCE& G's procedures for testing and monitoring the dams based on Fukushima *lessons*? Any other updates as a result of Lessons learned from Fukushima?

35. How many times has DHEC sent personnel to inspect the dams? *Are their reports available from SCE&G?*

36. What is covered in craft wages (category listed in Exhibit 2, Restated and Updated Construction Expenditures, Plant Cost categories)-- hourly rate, taxes, FDIC, benefits, insurance, other deductions from paychecks?

37. Similarly, what is the definition and practical expression of the category non-labor costs? Please detail what non-labor items are specifically so that costs attributed to them can be understood.

38. Specifically, in the category of time and materials, what is the definition of time and how are the costs computed? How are the costs of time and materials broken down or separated so the Commission and the public have an understanding of the reasonableness of each?

39. On page 10, under Transmission Costs Item #37, (a), "SCE&G has determined it is preferable to construct a new Saluda River 230/115 kilovolt Substation." Please explain the pro's and con's of a new substation vs. attending installing additional autobanks at the Lake Murray and Denny Terrace Substations. Please include the engineering, the time-lines, the costs, and other pertinent information.

40. On page 10 at the end of #37 (a) is the phrase, "and other improvements." Please fully detail what each of these other improvements is and include their timelines and costs, real and projected. (There was no reference to an exhibit for these improvements.)

41. On pg. 11 after the listing of (a) through (d) is a general statement about cost increases "associated with these and other changes . . ." Please fully detail and explain what these other changes are referred to in this phrase along with their timelines and savings costs, real and projected.

42. At the end of the same sentence the Company's petition refers to "other budgetary items where costs to the project have been reduced." Please explain what those budgetary items are, their costs, and how these costs reduce the cost of the total project.

43. In Exhibit 1, the Revised BLRA Revised Milestones for VC Summer Units 2 & 3 please list the dates for every milestone completed.

44. What percent of the costs of materials and fabrications have left South Carolina and the United States to companies in other countries?

45. What is the expected amount and type or outsourcing of replacement, refurbished, and /or repaired parts for maintenance?

46. Concerning Shaw Modular Solutions module fabrication in Louisiana, SCE&G has had to closely monitor with a resident inspector on site due to a seeming lack of a culture of nuclear safety at SMS. What sorts of standards has SCE&G been monitoring for at this plant?
    What extra costs for that position have been and will be incurred? Are these wages and benefits included in the construction schedule costs?

47. Concerning fabrication at other plants in the US and in other countries, to where else has the Company had to deploy in residence a monitor or monitoring team? How many and at what costs?

48. What *are the way(s)* to safely shut down the station i.e. without releasing radiation?

49. What is the necessary time (in hours or days) to shut down the entire station and/or each of the Units: 1, 2, and 3 in normal operation?

50. _What is the necessary time (in hours or days) to restart each of Units?

51. What is the necessary time (in hours or days) to cool down each of the reactors in the emergency situation, and compare this to Fukushima example)? Show other methods / variants when the first, or principal (assume gravity solution in AP 1000 design) will fail?

52. *What are designed other redundant ways to cool down fuel rods to safe temperatures?*

53. Is the cooling water is the only one way to cool down fuel rods in the emergency shut down?

54. Is this a true that Fukushima got stable cold shutdown situation to close the source of radiation by injecting seawater to the reactors? *What is your opinion about such solution? Compare to your solutions / protections in Jenkinsville*

55. Is it true that VS Summer has obligation to keep proper downstream flow in Broad River above specific values in cfs / gallons per day?

56. If yes what are these values? Is it 1000 cfs? *And where is it continuously measured along Broad River?*

57. _Was any time Unit 1 (one) caused drop the in stream flow in Broad River below the minimum limit?

58. _ What kind a document SCE&G has about coordination in [cooling] water usage from Broad River? Show / Indicate documents from coordinated works with Duke Energy – the other applicant for two AP 1000 units designed to withdraw another 53 Mgd from the same [Broad] River in SC.

59. What incidents occurred at Unit 1 for which SCE&G fined when they did not complete a remediation and/or corrective plan within the plans' deadlines?

60. _ *Who is personally responsible for evacuation in the case of nuclear disaster?*

- *How will the over million people in the area of 59-mile radius be handled with perspective to be relocated forever?*
- *Which city will be the headquarters for action and coordination; would it be still Columbia - the capital city of SC especially if it should need to be evacuated?*
- *Give your technical / operational opinion on already known example of City of Pripet [old USSR] - then with population of 50,000, the city still is w/o residents after 26 years after Chernobyl disaster.*
- *Do you have Emergency Action Plan (EAP) easy accessible to the SC people?*
- *List dates of public trainings done since Unit 1 was connected to the grid.*
- *What role you see PSC should play today in the preparedness? Do you expect help from ORS?*

61. Are other aspects of nature and/or human injected hazard to be solved by Existing / planned designed emergency systems? E.g. Solar storms, electromagnetic pulses, earthquakes (Jenkinsville is at Carolinas Fall line) with the waves of forces over designing factors/resistance and designing?

62. Please list Unit 1 *energy [in kWh or TWh] production for each year starting in first to the last full year in operation, from 1984 through 2011? A sample chart can be used to answer:*

1984	1985	1986	etc.																					2011

63. What was the reason that min [*down*] in stream flow in Broad River was noted as only 48 cfs in 2002?

64. Why in the NPDES Permit Application SCE&G engineering want to lower number of water quality tests and extend the time between them if in last decades there are available adequate ANALYZERS to do them [tests] automatically and there is safe transmissions to the centers of control? *Have you designed the SC Agencies (e.g. DHEC, Governor's) Control Rooms?*

65. What has Saluda Project / DNR data / objectives for adequate flow to fish – bass life/population? See: http://www.saludahydrorelicense.com/documents/RAmmarellSTBFlowSummary12-10-2008.pdf

66. Parr Shoal Dam / reservoir license expires 2020. *Do you expect the similar works to be done as was before in 2010 in licensing Saluda at Lake Murray dam?*
67. *How reactors will get their cooling water in the time of such construction works? What would be financial burden put to SCE&G and Santee Cooper customers?*
68. Please provide information about the members of each of the NND teams:
    - Educational types and levels of degrees of each and schools from which each degree was earned
    - Ages of each team member.
    - The number of team members from Santee Cooper.
69. Which team is responsible for emergency situations and procedures that would result from inadequate water resources as the result of below-minimum flows in the Broad? Minimum pool levels in Parr Reservoir? Minimum pool levels in Lake Monticello?
70. What are the minimum flows for Frees Creek, the tributary which feeds Lake Monticello and the Broad River? If none have been set by DHEC, how is the health of the creek assessed in terms of its flow, temperature, and its ability to continue feeding into other water bodies, and not drying up?
71. The NND Team is also referred to as the NND project. Which team(s) is/are working concurrently on the VC Summer new facility and on the "small," modular nuclear power plants being researched, designed, developed, and prepped for deployment?

72. What assessments has that team made on the effects of low flows on downstream neighbors in the case of emergency, neighbors such as farmers, the City of Columbia, and Congaree National Park?

73. For the future nuclear workforce how many schools in South Carolina have ABET accreditation and are thus prepared to deliver sufficient engineers, technicians, etc. for the next 60 years to the nuclear industry?
74. What percent of total cost [or should we ask of construction cost, or capital cost] is outsourced to other countries?
75. What is the expectation of outsourcing of replacement parts and maintenance –wiring, generators, etc.?
76. What efforts SCE&G make to find and contract with US companies in manufacturing and fabrication?
77. Was an attempt made to take advantage of the federal stimulus funds?
78. How will the cooling system keep minimum flow of the number from the NPDES permit application?
79. Who is personally responsible for negligence in licensing and safety blockade of commissioning of Units 2 & 3 before operating it before they are connected to the grid?
80. What were former NCR Chief *Dr. Jaczko's* objections to the COL? And what is your response? What is the solution?
81. What are the results of testing in the last few years to estimate and to mitigate seismic hazard?
82. Considering lessons learned from Fukushima,
    - What kind of cooperation was conducted with Duke Energy in cooling water taken from Broad River management?
    - Show documents with procedures / control, especially in the drought seasons.
    - Please confirm or correct the numbers of total withdrawn water as 106 Mgd from the river, 80 Mgd evaporated and 27 Mgd returned from new four reactors' back to river with higher temperature.
    - Confirm the City of Columbia permit for 125 Mgd and cooperation with this Broad River water user.
83. What is DNR position in this problem?
84. How the minimum flow of 1000 cfs will be guaranteed by Jenkinsville nuclear plant? Is the Alston Gage Station a point of control? If yes, what system will be installed and maintained?
85. _ What was SCE&G's level and type of cooperation with SC Attorney McMaster in his litigation against. NC in the water usage (believed to be on start 10 Mgd) in the years when Company submitted their Application to NRC

and SC PSC / ORS. If there was cooperation with SCE&G's supporting of McMaster's action, what were the PSC's directions to or agreements with the Company's nuclear project in Jenkinsville? What was cooperation with farmers' organizations and/or state agricultural agencies?

86. What was SCE&G's role, support or non-support, of McMaster's and the State of South Carolina's effort to protect water quantity for South Carolina?
87. Why did the Company not arrange permitting process in 2005- 2009? In this time the undisputed process on Water Permitting Act was in SC legislature, right? Federal Clean Water Act. Sections 402 and 404 of the 1970s seem do not cover practical water problems for the state especially when volume of the requested water are in such higher demand. Compare extra 2 * 53 Mgd for new reactors to SC Act requirement for users above 0.1 Mgd. SC Act is in power since 2011-01-01 many month before planned start of Unit 2 and 3. Please give full explanation in real water situation in SC beside legal maneuvers done till now. Describe also your solution in the case the application for water permit will be denied.
88. _ What is present situation / cooperation with State agriculture institutions? Are here any procedures how to handle very possible conflict of interest in the drought time?
89. _ What was done in designing and cooperation with parties having stake in water usage after drought and heat waves lessons in Southeast of the USA and Europe (specific problems in France, England and Germany) in first decade of XXI century, to protect water for all users in the SC river basins?
90. _ Are there any differences exist in EAP by SC Governor's, Counties; and Company? What is a structure of who reports to whom) in SE region of the USA? And in federal responsibilities (e.g. FEMA)? Some people from Fairfield county claim that they have no idea what and how to arrange their evacuation – what kind of training was conducted in the area in radius of 50 mile for the public?
91. _ What is the list of priorities in disposition of the water in the time of severe drought ?